Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

The claims have been amended as follows:

- 4. (Amended) A sequence according to any preceding claim_1, wherein the apopholasin is non-glycosylated.
- 5. (Amended) A sequence according to any preceding claim 1, wherein the apopholasin is glycosylated.
- 8. (Amended) A construct according to claim 6 or claim 7, wherein the apophotoprotein is apopholasin.
- 9. (Amended) A recombinant construct according to any one of claims 1 to 8, wherein the nucleic acid sequence is linked operably with nucleotides enabling expression and secretion of the apopholasin in a cellular host.
- 10. (Amended) DNA or RNA according to $\frac{\text{any of }}{\text{claims}}$ 1 to 9.
- 13. (Amended) The apopholasin according to claim 11 or claim 12 when expressed by recombinant DNA or RNA according to claim 10.
- 15. (Amended) A cell, plasmid, virus or live organism having incorporated expressibly therein a sequence according to any one of claims 1—to 10, whereby it is capable of producing an apoprotein.
- 16. (Amended) A vector comprising a sequence according to $\frac{1}{2}$ and $\frac{1}{2}$ according to $\frac{1}{2}$ and $\frac{1}{2}$ according to $\frac{1$
- 18. (Amended) A bioluminescent oxidative indicator protein (BOIP), comprising an apophotoprotein according to any one of claims 11—to—14 in association with a luciferin.

- 23. (Amended) A method according to claim 21 or 22, wherein said BOIP is selected from native or chemically-or genetically-modified BOIP or a 'rainbow protein' based on such a BOIP.
- 24. (Amended) A method according to any one of claims 21 to 23, wherein said BOIP includes a signal peptide, targeting it to a pre-determined extra-or intra-cellular site.
- 25. (Amended) A method according to any one of claims 21 to 23, comprising incubating a test sample with a cell according to claim 15 or with a membrane preparation derived therefrom, plasmid, virus or live organism having incorporated expressibly therein:
- (a) a sequence that encodes the apophotoprotein of pholasin (alternatively, 'apopholasin');
- (b) a sequence substantially homologous to or that hybridises to sequence (a) under stringent conditions; or
- (c) a sequence substantially homologous to or that hybridises under stringent conditions to the sequence (a) or (b) but for the degeneracy of the genetic code; or
- (d) an oligonucleotide specific for any of the sequences (a), (b) or (c) PROVIDED THAT such homologous sequences according to (b) or (c) encode a protein capable of binding to luciferin.

- 26. (Amended) A method according to any one of claims 21 to 24, wherein light emission takes place in the absence of a luciferase.
- 27. (Amended) The use of a sequence or a protein according to any one of claims 1 to 19 in the detection, diagnosis or measurement of oxygen or a metabolite thereof.
- 29. (Amended) A method for obtaining a substantially homologous source of apopholasin, which method comprises culturing cells having incorporated expressibly therein a polynucleotide encoding apopholasin as defined in any one of claims 1 to 10, and thereafter recovering the cultured cells.
- 30. (Amended) A method, use or kit according to any one of claims 20 to 29, substantially as hereinbefore described with particular reference to the Examples.